

New A Level Electronics

H065 and H465 replacing 3826 and 7826

Information for OCR centres transferring to **new specifications for first teaching in September 2008**

This document maps the current A Level Electronics specification to the new specification for first teaching in September 2008. It includes information on the changes, support available and an outline of the new specification. It is intended to help ease the transition for Heads of Department and Teachers involved in the teaching of Electronics.

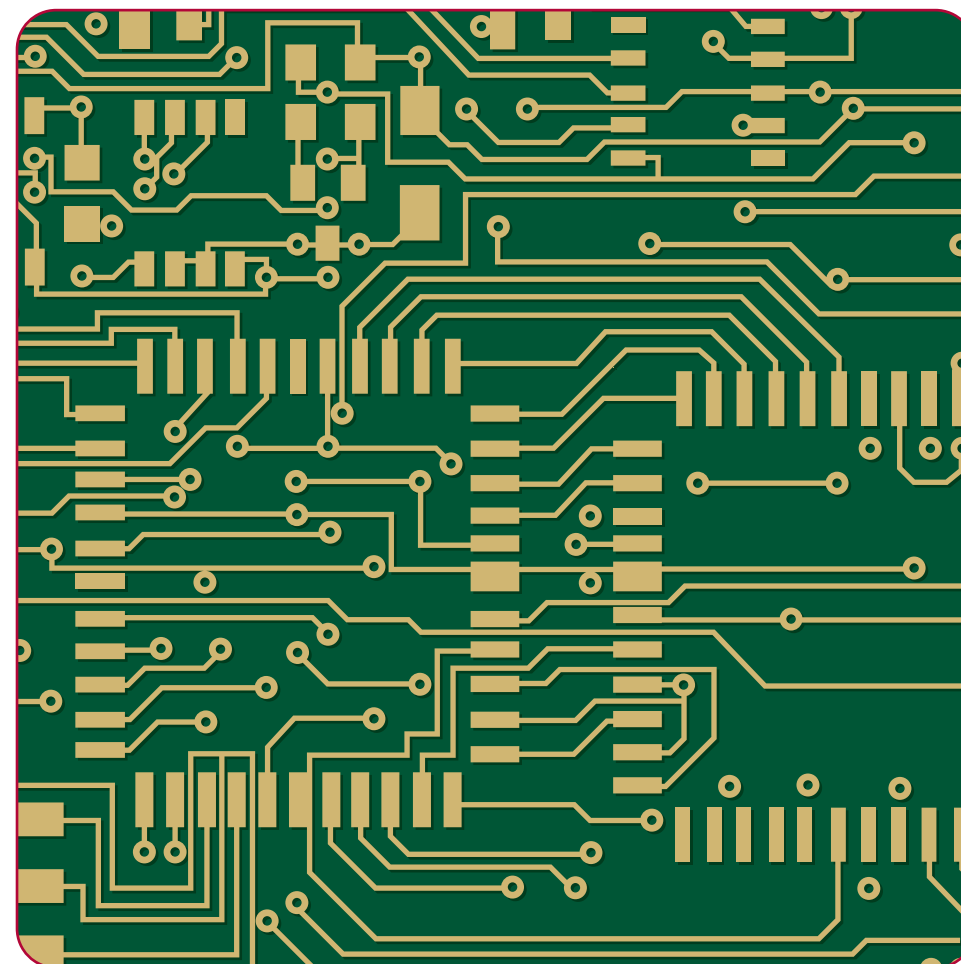
The full specification is available online along with a short questionnaire enabling you to share your comments on the specification and help shape the materials developed to support it. For more information including answers to frequently asked questions visit www.ocr.org.uk/14-19alevels.

Current specification – mapping the changes pages 2-3

Outline specification for first teaching September 2008 pages 4-5

QCA have stipulated that:

- Number of units required to achieve GCE A Level General Studies is to remain as six.
- Stretch and Challenge style questions to be introduced into A2 assessment



Mapping the changes to the A Level Electronics specification for first teaching September 2008

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Existing specification						
Current unit title	Unit code	What remains the same?	What is changing?	Why is it changing?	Guidance	
AS	Foundations of Electronics	2526 Mandatory 40% (AS) 20% (A Level) 1hr 30mins exam	<ul style="list-style-type: none"> The basic grounding in Electronics remains the same with both new modules retaining the basic introduction to digital and analogue electronics. The digital element is very much the same but microcontrollers have been introduced at AS level to give candidates an early introduction to the power of these digital devices. 	<ul style="list-style-type: none"> Question papers now have equal weighting throughout the specification. The new spec has a more digital content to reflect electronics in the 21st century. It now includes content on Microcontrollers and video. To make room for the microcontroller, some small aspects of the previous syllabus have been dropped, for example, linear power supplies. New unit code F611. 	<ul style="list-style-type: none"> To redress the balance between the units which have equal importance in the specification. 	<ul style="list-style-type: none"> Website support will be online for 2008. This will include access to past papers, exemplar material, syllabus teaching notes (especially for the microcontroller), and the potential for teachers to post questions on an electronics forum.
	Signal Processing	2527 Mandatory 30% (AS) 15% (A Level) 1hr 15mins exam	<ul style="list-style-type: none"> The principles of signal processing remain the same. 	<ul style="list-style-type: none"> New unit code F612. There will be more emphasis on microcontrollers and digital signals. 		
AS	Electronics Project 1	2528 Mandatory 30% (AS) 15% (A Level) Coursework	<ul style="list-style-type: none"> The AS coursework has changed considerably. Previously, candidates at AS level performed a large single project. However, it was felt that many candidates did not possess the skills necessary to carry this out successfully. The new coursework addresses this by requiring candidates to perform 3 basic subsystem analyses: one each for digital, analogue, and a microcontroller. This should aid candidates to develop the skills needed to carry out a project at A2. 	<ul style="list-style-type: none"> The practical element now has a 27% weighting. New unit code F613. 	<ul style="list-style-type: none"> To give candidates the opportunity to develop the skills necessary to be able to go through the design – build – test – analyse cycle. 	
	Communication Circuits	2529 Mandatory 20% (A Level) 1hr 30mins exam	<ul style="list-style-type: none"> Very much centred around the digital world and the movement and subsequent storage of data. Basic radio techniques have been retained as these are still relevant today. 	<ul style="list-style-type: none"> New unit code F614. 		

Existing specification						
Current unit title	Unit code	What remains the same?	What is changing?	Why is it changing?	Guidance	
A2	Control Circuits	2530 Mandatory 15% (A Level) 1hr 15mins exam	<ul style="list-style-type: none"> Still considers some of the basic techniques used to control variables such as position, temperature, motor speed. 	<ul style="list-style-type: none"> Question papers will not rely on one large question based around a microprocessor. Instead, questions on the microcontroller will be shorter and more focussed on specific tasks. The microcontroller will be programmed using a form of Assembler language which has been written for both PICs and AVRs. New unit code F615. 	<ul style="list-style-type: none"> Instead of relying on one family of microcontrollers, it was decided to write a short set of assembler instructions which can be read by two of the most popular microcontrollers, PICs and AVRs. Most centres will be geared up for one of these and the new syllabus will not require a heavy investment in microcontroller technology. 	<ul style="list-style-type: none"> Website support, especially for the microcontroller.
	Electronics Project 2	2531 Mandatory 15% (A Level) Coursework	<ul style="list-style-type: none"> The practical project will remain very much as it is now but with a new easier to use mark scheme which emphasises the design ,build, test and analyse cycle. 	<ul style="list-style-type: none"> The Assessment Criteria have been completely rewritten. It was felt that the previous Assessment Criteria were, in parts, ambiguous and open to interpretation. The new Criteria consists of 60 marks in banded markscheme. This should clarify and make the marking of the reports easier. It should also make the moderation process tighter. New unit code F616. 	<ul style="list-style-type: none"> To make the internal marking of the report easier as the Assessment Criteria are clearer and well-defined. 	<ul style="list-style-type: none"> Coursework guidance and sample material on the web.

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Candidates must complete six units; three units of assessment for AS GCE and six units of assessment for Advanced GCE



	New unit title	New unit code	Benefits to me and my learners	Support
AS	Simple Systems	F611 Mandatory 36.5% (AS) 18.25% (A Level) 1hr 30mins exam externally marked	<ul style="list-style-type: none"> Introduces the programming of microcontrollers using a flowchart technique (freely available). Many candidates will have met this concept at GCSE level and this is a natural progression. There will be questions in this paper to assess the quality of written communication. 	
AS	Signal Processors	F612 Mandatory 36.5% (AS) 18.25% (A Level) 1hr 30mins exam externally marked	<ul style="list-style-type: none"> There will be more emphasis on microcontrollers and digital signals for example bistables flip flops and latches. There will be questions in this paper to assess the quality of written communication. 	
AS	Build and Investigate Electronic Circuits	F613 Mandatory 27% (AS) 13.5% (A Level) Three subsystems to be investigated. Internally marked, externally moderated.	<ul style="list-style-type: none"> This AS practical unit is broken into three discrete sections. Teachers will be able to mark through the school year and submit only one set of marks when finished. Designed to strengthen practical skills in the creation of electronic subsystems using the design, build test and analyse cycle. 	<ul style="list-style-type: none"> In addition to OCR assembler code sheets and specimen materials it is hoped that there will be industry support from Microcontroller manufacturers to help centres with these practical units.
A2	Electronic Control Systems	F614 Mandatory 18.25% (A Level) 1hr 40mins exam externally marked	<ul style="list-style-type: none"> Introduces candidates to analogue and digital systems for processing and storing data, and negative feedback for controlling physical quantities. There will be questions in this paper to stretch and challenge candidates and also includes questions to assess the quality of written communication. 	
A2	Communications Systems	F615 Mandatory 18.25% (A Level) 1hr 40mins exam externally marked	<ul style="list-style-type: none"> Includes modulation, encoding and multiplexing and digital signals to display moving images. There will be questions in this paper to stretch and challenge candidates and also includes questions to assess the quality of written communication. 	

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Candidates must complete six units; three units of assessment for AS GCE and six units of assessment for Advanced GCE



A2

New unit title	New unit code	Benefits to me and my learners	Support
Design Build and Investigate Electronic circuits	F616 Mandatory 13.5% (A Level) One complete project to be built and investigated. Internally, and externally moderated.	<ul style="list-style-type: none"> Includes modulation, encoding and multiplexing and digital signals to display moving images. There will be questions in this paper to stretch and challenge candidates also includes questions to assess the quality of written communication. 	<ul style="list-style-type: none"> In addition to OCR assembler code sheets and specimen materials it is hoped that there will be industry support from Microcontroller manufacturers to help centres with these practical units.